UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,281	09/21/2000	Jin Soo Lee	III-019	8469

7590   01/31/2003

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EXAMINER
MAHMOUDI, HASSAN

ART UNIT	PAPER NUMBER
2175	

DATE MAILED: 01/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- Th MAILING DATE of this communication appears on th cov r sh et with the correspondenc addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 November 2002_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4, 6, and 14-20_ is/are rejected.

7)☒ Claim(s) _5, and 7-13_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. **DOV POPOVICI**

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 2100

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Remarks

1. In response to communications filed on 15-November-2002, claims 1-3 and 14-15 are

amended, and new claims 18-20 are added per applicant's request. Therefore, claims 1-20

are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Ma et al</u>

(U.S. patent No. 6,347,313) in view of <u>Liddy et al</u> (U.S. patent No. 6,304,864.)

As to claim 1, <u>Ma et al</u> teaches a multimedia data structure reflecting change of a user

relevance feedback (see column 1, lines 5-10) for determining weights of image features used for

an image search, comprising:

(a) information describing at least one feature of a certain image (see column 3, lines 18-23);

and

(b) recent user feedback information (see column 3, lines 37-56) based on user relevance

feedback (see column 6, lines 45-50.)

Ma et al does not teach:

(c) whole feedback information based on the user relevance feedback.

Liddy et al teaches a system for retrieving multimedia information (see Abstract), in which

she teaches whole feedback information based on the user relevance feedback (see column 12,

lines 9-24, and see column 13, lines 26-38, where "whole feedback" is read on "relevance

feedback" on a "periodic time interval".)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have modified Ma et al to include whole feedback information based

on the user relevance feedback.

It would have been obvious to a person having ordinary skill in the art at the time the

invention was made to have modified Ma et al by the teaching of Liddy et al, because having

whole feedback information based on the user relevance feedback, would enable the system to

define periodic intervals automatically, or as set by the user, to allow accumulation of all

relevance feedback on a particular object (image) to be captured, in order to categorize the

objects (image) based on whole user relevance feedback.

As to claim 2, Ma et al as modified teaches wherein the recent user feedback information is

determined for a predetermined time period (see Liddy et al, column 12, lines 13-14, where

"predetermined time period" is read on "interval may be 15 minutes") or by a predetermined

frequency (see <u>Liddy et al</u>, column 12, lines 21-22, where "predetermined frequency" is read on

"X number of documents".)

As to claim 3, <u>Ma et al</u> as modified teaches wherein the recent user feedback information is a

weight value learned by the user relevance feedback or a similar image information (see <u>Ma et</u>

<u>al</u>, column 6, lines 49-50, and see column 8, lines 4-10), and the whole feedback information is

represented by a weight value learned by previous feedback (see <u>Liddy et al</u>, column 13, lines

30-33.)

As to claim 6, <u>Ma et al</u> as modified teaches the method comprising:

representing the recent user feedback information by a similar image list (see <u>Liddy et al</u>,

column 8, lines 60-64); and

reflecting a recent user feedback pattern by the similar image list (see <u>Liddy et al</u>, column 3,

line 64 trough column 4, line 9), using a queue algorithm (see <u>Liddy et al</u>, column 10, lines 34-

38.)

4. Claims 4 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Ma et al</u>

(U.S. patent No. 6,347,313) in view of <u>Liddy et al</u> (U.S. patent No. 6,304,864), as applied to

claims 1-3 and 6 above, and further in view of <u>Cohen</u> (U.S. Patent No. 6,067,539.)

As to claim 4, <u>Ma et al</u> as modified does not teach the data structure further comprising

recent user feedback reliability information representing how reliable the recent user

feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is.

Cohen teaches an intelligent information retrieval system (see Abstract), in which he teaches: recent user feedback reliability information representing how reliable the recent user feedback information is (see column 7, lines 51-56), and whole feedback reliability information representing how reliable the whole feedback information is (see column 2, lines 45-64, where "whole feedback" is read on "updating the score with scores received on previous message".)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ma et al as modified to include recent user feedback reliability information representing how reliable the recent user feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ma et al as modified, by the teaching of Cohen, because recent user feedback reliability information representing how reliable the recent user feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is, would increase the efficiency and accuracy of the entered feedback and allow data (images) with the most relevant/reliable user feedback to receive a higher rank/weight for presentation to the user than data (images) with a lower reliability score.

As to claim 14, <u>Ma et al</u> teaches a method of determining weights of image features used for an image search based on user relevance feedback (see Abstract), comprising:

(a) providing a multimedia data structure (see column 1, lines 5-10) including information describing the features of a certain image (see column 3, lines 18-23), and recent user feedback information for the image (see column 3, lines 37-56, and see column 6, lines 45-50);

(b) updating the recent user feedback information (see column 2, lines 28-33);

(c) determining weights of the image features in proportion to the reliabilities of the recent feedback information (see column 6, lines 11-18.)

<u>Ma et al</u> does not teach: whole feedback information for the image; and determining weights of whole feedback information, or both the recent feedback information and the whole feedback information.

<u>Liddy et al</u> teaches a system for retrieving multimedia information (see Abstract), in which she teaches: whole feedback information for the image (see column 12, lines 9-24, and see column 13, lines 26-38, where "whole feedback" is read on "relevance feedback" on a "periodic time interval"); and determining weights of whole feedback information, or both the recent feedback information and the whole feedback information (see column 13, lines 15-18.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified <u>Ma et al</u> to include whole feedback information for the image; and determining weights of whole feedback information, or both the recent feedback information and the whole feedback information.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified <u>Ma et al</u> by the teachings of <u>Liddy et al</u>, because obtaining

whole feedback information for the image; and determining weights of whole feedback

information, or both the recent feedback information and the whole feedback information, would

enable the system to define periodic intervals automatically, or as set by the user, to allow

accumulation of all relevance feedback on a particular object (image) to be captured, in order to

categorize the objects (image) based on whole user relevance feedback and based on the weights

(ranking) of relevance of the entered feedback.

Ma et al as modified still does not teach reliability information corresponding to the

recent user feedback information and whole feedback information; and updating whole

feedback information and their reliabilities by learning them in response to the user relevance

feedback.

Cohen teaches an intelligent information retrieval system (see Abstract), in which he

teaches reliability information corresponding to the recent user feedback information (see

column 7, lines 51-56), and whole feedback information (see column 2, lines 45-64, where

"whole feedback" is read on "updating the score with scores received on previous message");

and updating whole feedback information and their reliabilities by learning them in response

to the user relevance feedback (see column 7, lines 36-38.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention was made to have modified Ma et al as modified to include reliability

information corresponding to the recent user feedback information and whole feedback

information; and updating whole feedback information and their reliabilities by learning

them in response to the user relevance feedback.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ma et al as modified, by the teaching of Cohen, because reliability information corresponding to the recent user feedback information and whole feedback information; and updating whole feedback information and their reliabilities by learning them in response to the user relevance feedback, would increase the efficiency and accuracy of the entered feedback and allow data (images) with the most relevant/reliable user feedback to receive a higher rank/weight for presentation to the user than data (images) with a lower reliability score.

As to claim 15, Ma et al as modified teaches wherein the recent user feedback information is represented by a weight value learned by the user relevance feedback or a similar image information (see Ma et al, column 6, lines 49-50, and see column 8, lines 4-10), and the whole feedback information is represented by a weight value learned by previous feedback (see Liddy et al, column 13, lines 30-33.)

As to claim 16, Ma et al as modified teaches wherein the reliability of the recent user feedback information (see Cohen, column 7, lines 51-56) is determined in proportion to a consistency of a recently used pattern or feedback (see Liddy et al, column 3, line 64 trough column 4, line 9.)

As to claim 17, <u>Ma et al</u> as modified teaches wherein the reliability of the whole feedback information is determined in proportion to the number of feedback concerned in learning (see <u>Cohen</u>, column 9, lines 32-51.)

As to claim 18, <u>Ma et al</u> as modified teaches wherein the reliability of the whole feedback information is responsive to recorded usage records wherein the recorded user usage records provide feedback to the reliability of the whole feedback information without user interaction (see <u>Cohen</u>, column 4, lines 31-39.)

As to claim 19, the applicant is directed to the remarks and discussions made in claim 14 above.

As to claim 20, <u>Ma et al</u> as modified teaches wherein the reliability information indicates reliability of both the user feedback information (see <u>Cohen</u>, column 7, lines 51-56) and the whole feedback information (see <u>Cohen</u>, column 2, lines 45-64, where "whole feedback" is read on "updating the score with scores received on previous message.)

Allowable Subject Matter

5. Claims 5 and 7-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, <u>Ma et al</u> (U.S. Patent No. 6,347,313), <u>Liddy et al</u> (U.S. Patent No.

6,304,864), and <u>Cohen</u> (U.S. Patent No. 6,067,539) do not disclose, teach, or suggest the claimed

limitations of (in combination with all other features in the claims):

wherein the recent user feedback reliability information is expressed by

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$$1 - \frac{\sum_{i=0}^{i=m} (N - n_i)}{N}$$

where, N is the number of feedback, m is the number of images in the similar image list, and

n(i) is the number of feedback given to the i-th image, as claimed in claim 5.

The prior art of record, <u>Ma et al</u> (U.S. Patent No. 6,347,313), <u>Liddy et al</u> (U.S. Patent No.

6,304,864), and <u>Cohen</u> (U.S. Patent No. 6,067,539) do not disclose, teach, or suggest the claimed

limitations of (in combination with all other features in the claims):

(b) if it is checked that the corresponding object does not exist in the current queue, inputting

the corresponding object to an uppermost space of a queue entrance, setting the number of

feedback of the corresponding object to "1", and shifting objects existing in the queue to lower

positions by one space;

(c) if it is checked that the corresponding object exists in the current queue, increasing the number of feedback of the corresponding object, and shifting the objects existing in the queue to upper positions by "N"; and

(d) if any object is shifted to the lower position over a size of the queue at the respective steps, deleting the corresponding object from the queue, as claimed in claim 7.

Claims 8-10 are objected to as being dependent upon the objected to dependent claim 7.

The prior art of record, Ma et al (U.S. Patent No. 6,347,313), Liddy et al (U.S. Patent No. 6,304,864), and Cohen (U.S. Patent No. 6,067,539) do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claims):

wherein the recent user feedback information is represented as a similar image list, and the similar image list has an image list structure composed of a similar image identification, a score reflecting the current feedback, and a waiting duration representing a time period between the final feedback time point and the present time point, as claimed in claim 11.

Claims 12-13 are objected to as being dependent upon the objected to dependent claim 11.

Response to Arguments

7. Applicant's arguments filed on 15-November-2002 with respect to claims 1-17 have been fully considered but they are moot in view of the new grounds for rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

   The following patents are cited to further show the state of art with respect to methods

and systems of searching images in an image database, providing feedback on the image

characteristics, and measuring feedback reliability in general:

   U.S. Patent No. 6,173,275 to <u>Caid et al</u>.

9. Any inquiries concerning this communication or earlier communications from the examiner

should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The

examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Dov Popovici, can be reached at (703) 305-3830.

tm

January 21, 2003

DOV POPOVICI
SUPERVISORY PATENT EXAMINER
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